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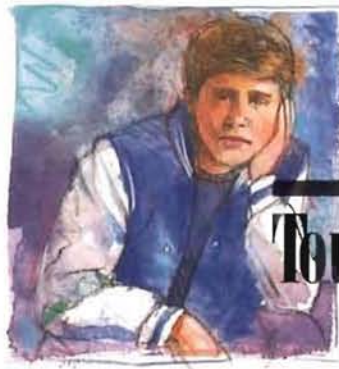
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OUTLOOK



Tourette Syndrome



When parents and children can't get along, developing personalities suffer and relationships are strained. Psychiatry is intervening by extending its range to help the youngest patients avoid future troubles. For more on infant psychiatry, see page 18.

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Control Denied

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Geneticists cooperate to track down
maddening Tourette Syndrome.



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Surgeons remove big organs through
small incisions.



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Psychiatry extends its range down in
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A graduate of the class of 1940
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On the Cover:

An artist interprets the unpredictable
nature of Tourette Syndrome, a
genetically transmitted disorder
characterized by both motor and
vocal tics that wax and wane.

Illustration by Greg Michaels.



Garland R. Marshall, Ph.D., and a computer-aided-design image of a molecule.

Drugs Designed On Screen

The National Institutes of Health has provided \$4.2 million in additional funding to the Center for Molecular Design at Washington University to continue research on computer-aided drug design.

Computer-aided drug design uses computer graphics and molecular modeling to streamline the process of drug development. The technique allows scientists to predict the viability of a new drug by manipulating a model of its receptor, or target, on a video screen.

This five-year program project grant supports collab-

orative projects of a multidisciplinary team of scientists, says principal investigator Garland R. Marshall, Ph.D., director of the center. Investigators funded through the program project grant include Marshall, professor of pharmacology and of biochemistry and molecular biophysics; Jay Ponder, Ph.D., assistant professor of biochemistry and molecular biophysics; Kevin Moeller, Ph.D., assistant professor of chemistry; Richard A. Dammkoehler, M.S., professor of computer science; and Bruce Nock, Ph.D., assistant professor of psychiatry and anatomy and neurobiology.

Researchers will use computational approaches to design potential therapies for

patients with organ transplants, AIDS, hypertension, anxiety and drug addiction. The computer-designed compounds will be produced and tested to provide feedback so that more powerful analysis and design tools can be developed.

In addition to NIH funding, financial support and scientific collaboration will be provided by Evans and Sutherland, manufacturers of high-performance work stations, and by Monsanto, G. D. Searle and Warner-Lambert/Parke-Davis. Their sponsorship will allow the recruitment of two additional scientists with expertise in computational chemistry. ■

Hammerman Named Director of Renal Division

Internationally renowned kidney expert Marc R. Hammerman, M.D., has been named director of the Renal Division at Washington University School of Medicine.

The appointment was announced by David M. Kipnis, M.D., Adolphus Busch Professor and chairman of the Department of Medicine. Hammerman is the third director in the division's 35-year history, succeeding Neal Bricker, M.D., and Saulo Klahr, M.D. Klahr has become chairman of the Department of Medicine at Jewish Hospital at Washington University Medical Center and vice chairman of the Department of Medicine at the School of Medicine.

Hammerman, a professor of medicine and associate professor of cell biology and physiology, joined the faculty at the School of Medicine in 1977. A nephrologist and endocrinologist, he is best known for his innovative studies on biochemical mechanisms that affect renal growth and development. He and his colleagues have described growth factor actions and gene expression in tissues from adult and developing kidneys.

Hammerman also specializes in diabetes, kidney disease and other metabolic diseases. He has served as

director of the house staff training program in internal medicine and is on staff at Barnes and Jewish hospitals, sponsoring institutions of the Washington University Medical Center. ■

Twelve Olin Fellows Named

The Division of Biology and Biomedical Sciences has announced the names of the 12 Spencer T. and Ann W. Olin Fellows for 1990. The scholars are: Keith H. Baker, Sarah K. Bronson, John A. Butman, Alan B. Cantor, Joseph A. DiGiuseppe, Julie A. Fiez, Jonathan H. Hughes, Denis F. Kucik, Theodora S. Ross, Jean E. Schroeder, Peter L. Smith and Mark A. Watson.

The fellowships are funded by a \$30 million commitment from the Spencer T. and Ann W. Olin Foundation that permanently endows training in the medical sciences. The gift supports primarily students in the Medical Scientist Training Program (MSTP), who simultaneously pursue M.D. and Ph.D. degrees. Washington University's MSTP is the largest in the United States.

The program's continuity is supported by the annual Olin Symposium that brings together current Olin Medical Fellows and selected fellows from previous years who have established their research careers. The symposia focus on subjects in modern medicine, with an emphasis on the interface between basic science and clinical medicine.

Service Helps Overcome Compulsions

A young man feels the need to wash his hands so frequently that he wakes up at 3 a.m. in order to finish the washing procedure in time for work. Another man can't leave home until he's counted the change in his pocket, tabulating the coins to see that the numbers they represent fit into an elaborate numerology system he's devised. A woman keeps going back to assure herself that she's locked the doors; no matter how many times she checks, she's never quite convinced that it's okay to leave.

All three suffer from obsessive compulsive disorder (OCD), a psychiatric illness in which people have obsessions or compulsions that interfere with their lives.

The Department of Psychiatry at Washington University School of Medicine has established a new program offering specialized care for OCD patients. The Obsessive Compulsive Disorder Service provides behavior and family therapy, both on an individual basis and in a group format, as a supplement to any medication treatment patients are already receiving. The most effective treatment for the illness is believed to be a combination of behavior therapy and medication.

"OCD at its worst is an exceptionally debilitating disorder," says Elliot Nelson, M.D., director of the service. "The nature of the symptoms alone may be extremely disturbing to family members, and the very force of the

symptoms will often place confusing demands on the family, in addition to those that are placed on the patient."

For that reason, Nelson says, family education and therapy is an important part of the Washington University OCD service. Another strength of the new service is group therapy, he explains. Patients meet to discuss general principles and techniques and then divide into groups of three so that patients with similar symptoms can help each other deal with the specific obsession or compulsion they have in common. Nelson will evaluate each patient accepted into the service and then work with the patient's physician to tailor a therapy program. ■



New Department Heads: Jeffrey Gordon, Dennis Choi

Jeffrey I. Gordon, M.D., has been appointed chairman and alumni professor of the Department of Molecular Biology. And Dennis W. Choi, M.D., Ph.D., has been named the Andrew B. and Gretchen P. Jones Professor and head of neurology and co-head of the Department of Neurology and Neurological Surgery.

Choi's appointment, effective July 1, was announced by William A. Peck, M.D., vice chancellor for medical affairs and dean of the School of Medicine, who said, "We are fortunate indeed to have



Jeffrey I. Gordon, M.D.

an outstanding department to even greater achievement."

Choi comes to Washington University from Stanford Medical School, where he has been on the faculty since 1983. Choi studies nerve-cell death caused by excitotoxins such as glutamate, one of the body's most common amino acids and an important player in transmitting signals in the brain. His clinical interests are in brain injury, both acute — as in trauma or stroke — and chronic — as in Alzheimer's disease, Huntington's chorea and Parkinson's disease.

He replaces William Landau, M.D., head of the

neurology department since 1970, who is retiring from administrative duties but will continue full time with patient care, teaching and research.

In announcing Gordon's appointment to head molecular biology and pharmacology, Peck said, "The department has a tradition of superior leadership, and Dr. Gordon's appointment assures continuation of that tradition. We are delighted that he has accepted this most important challenge."

Gordon is professor of medicine and of biochemistry and molecular biophysics at the School of Medicine and an associate physician at Barnes Hospital. For the last

eight years, he has studied a family of lipid-binding proteins and their genes, using a variety of methods. His lab was the first to use transgenic, or genetically engineered, mice to study how the genes that produce these lipid-binding proteins are expressed in various intestinal cells.

Gordon replaces Oliver H. Lowry, M.D., Ph.D., who has been acting as interim head of the department since 1989. Lowry is distinguished professor emeritus of pharmacology and was head of the department from 1947 to 1976. ■



Dennis W. Choi, M.D., Ph.D.

recruited someone with Dr. Choi's excellent academic credentials. He is a first-class researcher, teacher and clinician and has the talent to lead

Aging Linked to Nerve-Cell Lesions

Some of the elderly's most common health problems — from constipation and stomach upset to irregular heart rate and impotence — may stem from a buildup of lesions in the nerve cells of the autonomic system that occurs naturally with age, say researchers.

The autonomic nervous system regulates body activities that typically operate below our level of consciousness — digestion, heart rate, blood pressure, temperature regulation and urinary and sexual function. The lesions, which occur in all individuals and accumulate with age, block nerves and interrupt the system's ability to communicate and function. The team hopes this discovery will lead to the development of medications to counteract problems associated with autonomic dysfunction.

"We think we're looking at changes that a normal, healthy person with age would develop," says pathologist Robert E. Schmidt, M.D., Ph.D.

Schmidt and his colleague, Kevin Roth, M.D., Ph.D., studied autopsy results of 56 patients age 15 and older. Despite differing causes of death, all subjects showed similar autonomic nerve abnormalities. The abnormalities became more pronounced with age, particularly in those over 50 years old, and were

more prevalent in men than in women. The scientists focused on nerve cells within the autonomic nervous system that are not routinely examined because their location makes them difficult to biopsy.

They haven't yet discovered the cause of the lesions, but Schmidt and Roth have found a marker, neuropeptide Y (NPY), that identifies a subpopulation of nerve terminals that become diseased or abnormal. NPY is instrumental in the transmission of signals within the autonomic nervous system and is one of approximately 25 neuropeptides that aid in communication in the nervous system.

"There is something known about NPY's function at other sites, but its role in the sympathetic ganglia is still unknown," says Schmidt. "The literature is burgeoning in this area, however, so we hope to know more soon."

Not all lesions lead to physiologic dysfunction because all biologic systems have a built-in safety factor to compensate for small neuronal losses, the investigators point out. They believe their study has identified an age-related loss in the safety factor that may make the system susceptible to an additional insult, such as diabetes or other disease.

"It may be that with sufficient age you finally reach a critical mass of pathology that then leads to onset of

disease," Roth says. There are similarities between the lesions in the aging autonomic nervous system and those that appear in brain tissue of the elderly who have had Alzheimer's disease, he adds.

"Maybe this is a corollary in the peripheral nervous system, that as people age, these lesions continue to accumulate until at a point it becomes

pathologic and disrupts normal function," says Roth.

"It's a very selective, systems-related abnormality," he explains. "This implies it may be possible to find pharmaceutical agents or treatment to affect the NPY-containing system. That's speculative and down the line, but it identifies lesions to target." ■

Deusinger Heads Physical Therapy

Susan S. Deusinger, Ph.D., has been named assistant professor and director of the Program in Physical Therapy at Washington University School of Medicine and the Department of Physical Therapy at the School of Medicine's Irene Walter Johnson Institute of Rehabilitation (IWJ).

She had been acting director of the physical therapy program since August 1988. Deusinger, whose practice is primarily in pediatric rehabilitation, joined the faculty in 1978 as a physical therapy instructor and academic coordinator of clinical education. She helped develop an interdisciplinary doctoral program in movement and has been responsible for curriculum planning and administration of the entry-level educational program.



Susan S. Deusinger, Ph.D.

Her research interests involve assessing professional competence, determining the incidence of errors in clinical practice and the response of physical therapists to them, and understanding the mechanisms of clinical decision making. ■

Interdisciplinary Center Opens to Treat Cancer

The first center in Missouri to specialize in the treatment of head and neck cancer has opened at Washington University School of Medicine.

Patients at the center are treated by a team of specialists from several disciplines, including otolaryngology/head and neck surgery, radiation therapy, medical oncology, dentistry and rehabilitation. "The new center gives patients access to different specialists in one setting," says John M. Fredrickson, M.D., Lindburg professor and head of otolaryngology at the School of Medicine. "This is convenient for patients, but most importantly, the team approach helps ensure that they receive the best and most thorough care possible."

When patients are seen by their various specialists on different days, Fredrickson points out, it's difficult to cover all aspects of treatment. After patients are seen at the new center, specialists from the School of Medicine and Barnes Hospital meet to decide upon the best treatment.

Rehabilitation and reconstructive surgery are carefully considered during treatment planning, Fredrickson explains. Sometimes, head and neck cancer treatment requires removal of the voice

box or other important structures. That's traumatic, he says, making it imperative to consider the reconstructive and rehabilitative options available to improve each patient's appearance, function and quality of life once the cancer has been removed.

Research also is an important component of the center. Studies focus on diagnosing cancer earlier, predicting the course of individual cancers and developing better methods of treatment.

Approximately 67,000 cases of head and neck cancer are diagnosed in the United States each year. Of these almost half are in the mouth, affecting the tongue, lips, mucous membranes and palate. Another 25 percent involve the voice box. Current treatments available include surgery, radiation, chemotherapy and combination therapy.

The otolaryngology/head and neck surgery section of the Head and Neck Cancer Center is directed by Fredrickson. Bahman Emami, M.D., professor of radiology, is in charge of radiation therapy, and Joanne Mortimer, M.D., associate professor of medicine, supervises chemotherapy. Other surgeons from the Department of Otolaryngology also are involved. ■



A memorial service in honor of slain civil rights leader Martin Luther King, Jr., was held January 23 in the medical school's Erlanger Auditorium. Here, a participant lights a symbolic candle. Frankie Muse Freeman, J.D., the first woman to serve on the U.S. Commission on Civil Rights and a lawyer with the firm Whitfield, Montgomery and Staples in St. Louis delivered the address.

New Editor Assumes Reins

Outlook gets a new editor with this edition, the first issue of the 28th volume. Steve Kohler, for the past two years the School of Medicine's medical sciences feature writer, moves from that post to take responsibility for guiding the quarterly publication. A writer and editor of 15 years' experience, Kohler acknowledges plans for several changes to the periodical.

"Readers appreciate precision and can't afford to waste reading time. I hope to bring

shorter, more vibrantly written stories into the fold, use more and larger photos, increase readability and update the overall design to reflect changing needs but always avoid being merely trendy," he says. A veteran of newspapers, institutional and general magazines and books, Kohler says he hopes that, "anyone with a criticism or a suggestion will contact me with his or her thoughts. The magazine benefits when the information flows in both directions." ■

Coveted Passano Award To Two

Two St. Louis researchers have been chosen to receive the medical profession's highly coveted 1991 Passano Foundation Award.

Award recipients are Stuart A. Kornfeld, M.D., professor of medicine and biochemistry and molecular biophysics at Washington

University School of Medicine, and William S. Sly, M.D., professor and chairman of biochemistry and molecular biology at St. Louis University School of Medicine.

Kornfeld and Sly are the first St. Louis researchers to receive the award, which has been given annually since 1945. Working independently, the two produced discoveries

privileged to be able to do research in such a stimulating environment."

A 1962 graduate of Washington University School of Medicine, Kornfeld is co-director of the school's hematology-oncology division. He was elected into the National Academy of Sciences in 1982 and to the American Academy of Arts and Sciences in 1988.

Sly is an internationally renowned biochemist and medical geneticist. His life-long research involves the

genetic and biochemical basis of inherited metabolic diseases.

The sole purpose of the Passano Foundation is to encourage medical science and research, with an emphasis on clinical application. The foundation was formed in 1943 by the late Edward Boteler Passano, who was chairman of the board of The Williams & Wilkins Co., publishers of medical books and periodicals. ■



William S. Sly, M.D., and Stuart A. Kornfeld, M.D., recipients of the Passano Award.

University School of Medicine, and William S. Sly, M.D., professor and chairman of biochemistry and molecular biology at St. Louis University School of Medicine.

The Passano Award is given each year to one or two researchers who have made an outstanding contribution to the advancement of medical science and whose associated work was done in the United States. Prime consideration is given to work that has immediate clinical value or gives promise of practical

with broad relevance to cell biology and human disease. Specifically, they discovered the mechanism by which lysosomal enzymes are targeted so that they can be taken up by lysosomes, which break down and eliminate waste from cells. Defects in this disposal system can cause rare disorders called lysosomal storage diseases, such as Tay-Sachs disease.

Kornfeld comments, "An award like this comes about because of the dedicated people who work in our labs. It's high-quality work and I feel

HealthStreets Reduce HIV Risks

Outreach centers bearing the name "HealthStreet" designed to educate drug users on how to reduce their risk for HIV infection by encouraging them to get drug treatment are now open at two inner-city locations.

The centers, funded by a National Institute on Drug Abuse grant awarded to Washington University School of Medicine, opened at 4624 Delmar and at 3552 Gravois. They are run by the St. Louis City Division of Health. In addition to offering AIDS education and HIV testing, the centers plan to offer other public health services such as immunizations and testing and referral for



Linda Cottler, Ph.D., an epidemiologist in the Department of Psychiatry, at one of the HealthStreet locations.

tuberculosis, diabetes and high blood pressure.

The centers are part of a \$3.5 million project in the School of Medicine's psychiatry department to persuade drug users to seek treatment by providing 300 new treatment slots at a drug-free program and a methadone maintenance clinic. Treatment is provided free of charge. ■

CONTROL DENIED



Georges Gilles de la Tourette.

Tourette Syndrome and the Biochemistry of Behavior

by Steve Kohler

1825 The Marquise de Dampierre sits in her rooms, no longer able to appear in public. Since the age of seven, she has lived with muscle tics that can send any part of her body into spasm unpredictably, an uncontrollable need to bark and a tendency to swear loudly at inopportune times. Her doctors call the malady “tics convulsif” and say, politely, that she is “in the habit of repeating certain immodest sayings, even on the most solemn occasions.” At the age of 85, she dies a recluse.

1991 Ethan Steinman, in the early years of his adolescence, must cope with not only his developing adulthood but with tics that bring a grimace to his face when he wants a smile, a need to pinch continually at the hem of his shirt or the cuffs of his pants, and incessant sniffing and throat clearing. The neurological disorder driving his behavior — and its emotional impact — tears at the seams of Ethan’s family. Regularly, family members must reaffirm their commitment to overcome it.



In the 100-plus years that elapsed between these two manifestations of the same disorder, the name of the condition changed from tics convulsif to Tourette Syndrome, after Georges Gilles de la Tourette, the physician who first characterized it. For most of that time, opinions about its origins and nature were argued, and a spectrum of treatments was tried without any substantial success. Attitudes grew somewhat more enlightened; today, even the Marquise's severe case would not mark her as a "madwoman."

But for all of the syndrome's long history, two constants have remained: a maddening complexity and an infuriating elusiveness that plague patients and their families, clinicians and researchers. The most debilitating of the tic disorders, Tourette Syndrome still is known only by its symptoms. The best an official diagnostic handbook can do is to characterize it as "multiform, frequently changing motor and phonic tics."

Variations in the intensity and character of the symptoms often confound its diagnosis. "Commonalities in cases exist, but what distinguishes Tourette Syndrome is the striking differences among cases of the same disorder," says Sue Levi, liaison for scientific programs at the Tourette Syndrome Association (TSA) in Bayside, New York.

Only in the last 30 years has any real progress in unraveling the actual nature of Tourette Syndrome been achieved. Finally now — with the advent of an understanding of disease on the molecular level — medical science is on the threshold of defeating it.

An especially cooperative international consortium of scientists, including Eric Devor, Ph.D., at Washington University School of Medicine, is committed to what Devor calls "untying the Gordian knot" and finding the gene (or genes) responsible for the surprisingly broad range of behaviors involved. When their work is complete, the researchers will have identified the miswiring that causes Tourette. They will have isolated the missing (or overabundant) element that upsets brain chemistry and takes away an individual's control over certain actions, thereby opening a big window on the biochemistry of behavior. And that will



Tourette investigator Eric Devor, Ph.D., and his assistant Vanesilla Henderson, who has done much of the DNA screening in the lab.

help to defuse all the anger that Tourette Syndrome provokes.

Patients and Their Families

January and February are the worst months of the year for 14-year-old Ethan Steinman. That is when his tics become more pronounced and the behavioral component of his disorder intensifies.

"He gets less physical activity at that time of year and is depressed more easily, too," says Barbara Steinman, Ethan's mother and the principal coordinator of his therapy. She has sometimes seen Ethan unable to wear shoes and socks because of his compulsion to scratch his feet, and she's watched at other times as he pulled his socks on with such force that his toes poked through the fabric.

Like most Tourette patients, Ethan began visiting physicians after his parents noticed tics in the muscles of his face. At first, his symptoms were attributed to allergies. It wasn't until Ethan reached age eight that the family got an accurate diagnosis. Most commonly, the

syndrome progresses from mild, involuntary motor tics of the face to other parts of the body, then expands to include vocalizations — either noises or, less often, complete words. Obsessive compulsive behaviors often develop, and parents report many instances of other behavioral problems.

Norman, Ethan's father, elaborates on how he has come to view his son's condition: "It's like a garden hose. If he pinches it off, the pressure builds, and sooner or later there's a flood. Stress makes it worse; the weeks before school starts are bad."

Ethan agrees. He knows he has both motor and vocal tics, and says, "I try to hide it when I'm around a new group of kids." Concerted effort lets him gain some control over the tics. But then at home, when he relaxes, the family experiences the worst of Ethan's symptoms.

The family is also the target for the behavioral aspects of the syndrome. "All of a Tourette kid's insecurities are compounded," Norman says. "Ethan goes to extremes, whether he's happy or sad or

mad. Then we have to decide whether the behavior is a teenager acting up or part of the Tourette," Norman says.

Although many researchers might disagree, the Steinmans believe that Ethan's depression and behavior problems are an innate part, not a secondary effect, of his Tourette Syndrome. "We went through the 'terrible twos' for five years. I thought sure we'd discover that Ethan was schizophrenic. It's easy to see how Tourette got mislabeled as a psychiatric disorder," Barbara says.

Gail Dierkes, whose son has Tourette Syndrome, knows about such family discord. "Whether the bad behavior and depression are reactive or primary, most people who live with Tourette patients have suffered with them," she says. "You have to live with a person with Tourette to come close to understanding. There's no clear line between what is Tourette Syndrome behavior and what is just bad behavior. I accept behavior from my child that I never thought I could accept from anyone."

As an example, Dierkes, who heads the St. Louis Area Chapter of the TSA, says her 17-year-old son has a very low frustration level and speaks whatever words come to his mind, though his vocalizations are not technically the coprolalia of the Marquise de Dampierre's case, since they are not an uncontrollable vocal tic. "When I get my son up in the morning, it makes him angry. So he calls me names; every morning, I get a verbal barrage," she says.

The situation can improve, and not just via the random waxing and waning of symptoms that characterize the disorder. One family of drugs, most notably haloperidol, works with mixed success to reduce the severity of tics in Tourette Syndrome. Haloperidol defeats neurotransmitters in the brain, a clue researchers have used to learn more about the underlying mechanism of Tourette Syndrome.

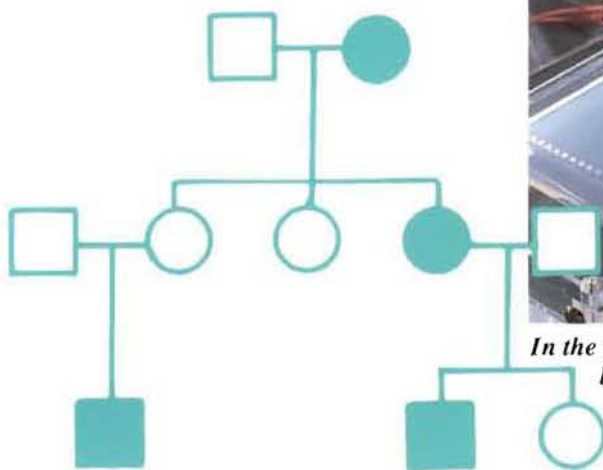
Other efforts also can help. When Ethan Steinman entered sixth grade, he encountered a special teacher who encouraged him. With her support, Barbara Steinman visited the school and showed an educational film about Tourette Syndrome to each of Ethan's classes.

"Since then, the kids don't tease me much. Sometimes they ask questions,

like they want to know more," Ethan says. Undoubtedly, that new understanding has eased some of the anger and pain associated with being seen as different.

How is it possible that such complex behavior, muscle tics and even obsessions and compulsions can all be attributed to one cause? Sue Levi explains some of what happens: "In general, there seems to be a lack of impulse control. Something has gone wrong with the control of inhibitions.

"In the majority of cases," she says, "the effects are so mild that the patient doesn't even know he has Tourette Syndrome; it doesn't interfere with daily life at all. But when a grandson gets a full-blown case, the family remembers a minor tic that Grandpa always had. When it's florid, it's hell."



In this pedigree, one branch of a family shows complete penetrance of the Tourette Syndrome gene (right side), but another branch (left) reflects incomplete penetrance, where a generation appears to have been skipped.

Researchers

When Devor and his colleagues talk about Tourette Syndrome in lay terms, they too use the image of control being undermined. "Somehow, inhibitions are on standby, not fully operating in people with Tourette Syndrome," says Devor, an assistant professor of psychiatry. To the question of how such a mechanism operates, the researchers are bringing the power of numbers and the precision of molecular genetics.

The modern era of research into Tourette Syndrome opened in 1961, when it was reported that haloperidol often worked to calm the tics, both muscular and vocal, of Touretters. That bit of information, Devor reports, suggested to medical scientists that a biochemical pathway was directly involved.

Interestingly, Tourette had written much the same thing in his earliest papers on the subject, describing the dis-



In the lab, DNA samples are analyzed by researchers looking for a telltale characteristic that is transmitted along with Tourette Syndrome.

order as being transmitted within families. His observations and opinions have turned out to be remarkably correct. But for 80 years after he first put a description to the syndrome, medicine confused the issue by mistakenly assuming a psychological basis for the condition. Surgical lobotomies, sedatives, stimulants, antidepressants, vitamin therapy and psychotherapy all failed to effectively treat Tourette's wide range of symptoms. When an organic origin for Tourette Syndrome regained credence, researchers also began to look for hereditary factors, using powerful computer models that uncover patterns of genetic transmission.

The range of behaviors associated with Tourette Syndrome has made isolating its genetics especially difficult, Devor says, but sophisticated statistics programs



Together, Norman, Barbara and Ethan Steinman refine their understanding of Ethan's Tourette Syndrome and its effects on the family.

and controlled family studies finally have resolved the issue. He works with cell samples from 16 families consisting of 152 individuals with 50 affected members. Such large, dense families provide the best information about transmission.

When Tourette Syndrome, obsessive compulsive disorder and chronic motor tics are examined together as part of the same dysfunction, the transmission in families precisely fits the model for a single dominant gene. That means,

Devor says, that a single gene is most likely responsible for those three traits. "Other related behaviors may be co-inherited, or they may be caused by the Tourette gene. When you study families affected by a rare disorder, you're liable to see common disorders, too," Devor says, "but strictly speaking, depression and the other behavioral troubles we often see in people with Tourette Syndrome probably are not part of the same genetic disorder." It helps to under-

"There are five times as many genes expressed in the central nervous system as in any of the body's other systems, so the task is enormous."

stand how obsessions and compulsions can be part of the same gene effect as motor tics if you think of them as "thought tics," he explains.

Not all researchers agree that classic Tourette Syndrome is limited to the traits of tics and obsessive compulsive disorder. A smaller camp asserts that the disorder is much more common. Its members think the same gene is responsible for panic attacks, stuttering, depression, schizophrenia, phobias, attention deficits, manias and other conditions that can be attributed to a deregulation of the brain's biochemistry. These scientists propose that Tourette is among the most common genetic disorders, affecting more than one percent of the population.

While Devor and his colleagues agree that the gene involved is undoubtedly an inhibitor of behavior, they find no evidence of an excess of any of those other disorders in families affected by Tourette Syndrome. Their narrower view of the disorder was recently adopted by the international consortium on the genetics of Tourette Syndrome. The report of that group's workshop still allows, however, that "the boundaries and spectrum of the disease remain unclear."

Medical scientists investigating Tourette Syndrome have few clues to point them toward the gene they search for. The brain's dopaminergic system, consisting of the neurotransmitter dopamine and its receptors in nerve cells, is of particular interest because it is affected by haloperidol. "But that's a huge system that arises in the mid-brain and then branches throughout the brain, interacting with other neurotransmitters," says Devor. "There are five times as many genes expressed in the central nervous system as in any of the body's other systems, so the task is enormous."

To find the gene, molecular geneticists like Devor and Kenneth Kidd, Ph.D., of Yale University Medical School are exploring the genes of families in which Tourette Syndrome has been identified. They use probes — small pieces of DNA with a known composition — to hunt for differences in the DNA of Tourette patients. When they eventually find a difference that regularly occurs in many individuals with the ailment, they will have a marker, a known location on the DNA that is near the gene responsible for the disorder.

Once the gene is located, the next step is to decode its instructions to find out what product it instructs the body to make. If the gene has a flaw, then its protein product will be unable to perform its intended function. "Whatever the product is, it's likely to be a very centralized defect, with results seen all over the brain," Devor says. "When we figure this out, we will have a much better idea of the general biochemistry of behavior; we'll learn a lot more about how the brain works."

Devor says he hopes it will be "a short hop" from finding the gene to identifying its product. That's not always the case, however. In other single gene searches, results have been mixed. Researchers who located the gene for cystic fibrosis identified its product within a year, but scientists who found the Huntington's gene in 1983 still don't know what it does, he says. "Until we have the gene and its product, we won't know how to treat the syndrome and we won't even know for sure how much of what we see is genetic, despite our very good model.

What we have is still just a computer model."

Confounding the issue of verifying Tourette's genetic transmission is the culprit gene's incomplete penetrance, meaning that a person can carry the dominant gene and still not show any symptoms. "It's our way of saying that whatever the genetic impact is in Tourette Syndrome, it's still not enough," says Kidd, a professor of human genetics, psychiatry and biology at Yale. Also

"Even something highly genetic is not absolutely deterministic," says Kidd.

necessary is some environmental or random effect.

Kidd offers two possible examples: the number of cells in the inhibitory pathways of the brain might be reduced in part by a faulty Tourette Syndrome gene and in part by a virus with a selective effect on the same neurons. "Such viruses exist, and they often give no more outward sign than the mild colds children frequently get," he says. Or perhaps, because there are not enough genes to control every detail of development, random chance dictates a 10-percent reduction in the number of neurons in the same inhibitory pathway. That, coupled with a gene effect, could produce Tourette Syndrome. In a normal brain, the 10 percent reduction, whether caused by chance or by the hypothetical viral infection, would have no effect.

It's also possible, Kidd says, that there is a wide range of effectiveness for the Tourette gene's product, depending upon just how badly garbled the "recipe" for the protein is. All of these factors explain how it's possible for Tourette Syndrome to be either mild or severe, to apparently skip generations and occasionally to affect one member of a pair of identical twins but not the other. "Even something highly genetic is not absolutely deterministic," says Kidd.

Another quirk of the syndrome is its apparent prevalence in males over

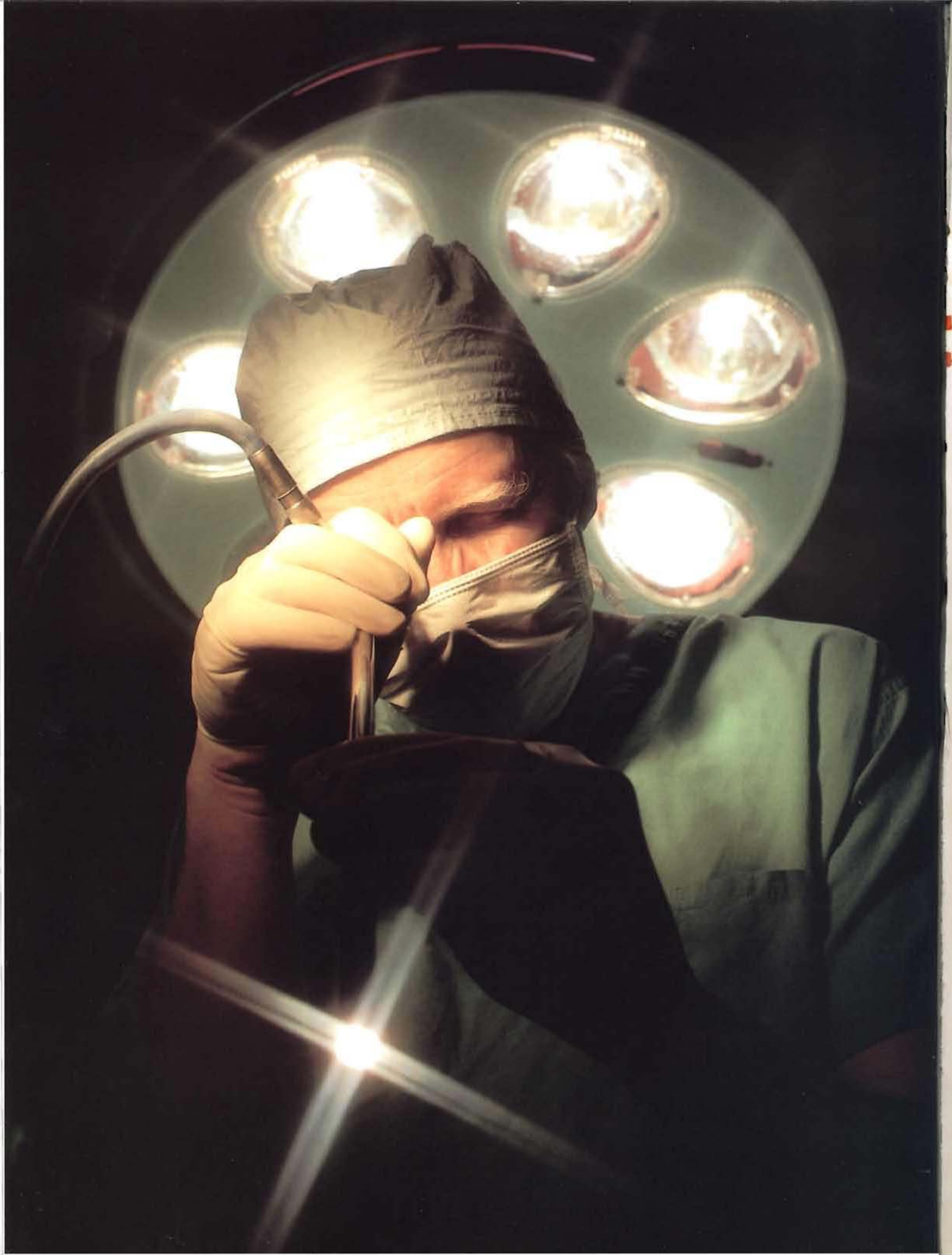
females. Penetrance among males is almost 100 percent, but falls to roughly 70 percent among females with the gene. According to Devor, such sex differences are common in neurological disorders. Kidd adds that though no one knows precisely why, researchers suspect that differences in the fine neuroanatomy of the sexes are responsible.

Members of the consortium hunting for the Tourette gene have explored almost 80 percent of the human genome — the complete set of genetic information — without finding a region that is linked to Tourette Syndrome. "The problem now," Devor says, "is that the remaining 20 percent is more difficult. We don't have good probes for much of what's left, so the work slows down."

Still, new probes are being developed every day, and the spirit of cooperation between members of the consortium is a model for the scientific community. The task of screening the genome has been equitably split. "We have subordinated our own interests to the interests of the group and especially to those of the patients," Devor says. "We share unpublished data; we share cell lines from the families we identify. And twice a year we meet to share our frustrations and our suspicions. We will continue until we get the gene. If we get through 100 percent of the genome and still don't have it, we'll start over."

Only when the single gene that researchers think is responsible for Tourette Syndrome has been found among the 100,000 genes of the human genome will it become possible to sort out treatment. That discovery finally will clarify what is and what is not part of Tourette Syndrome, and the circle will close.

In 1899, Georges Gilles de la Tourette wrote about the syndrome he observed: "It is no menace to existence, and the patient may well attain a ripe old age, but in revenge he stands very little chance of escaping from it." That statement may turn out to be one of the physician's few mistakes, because when the gene's product has been identified and a treatment has been devised, Tourette Syndrome patients may well escape from the maddening betrayal by their genes that plagues them. ■



Through The Needle's Eye

Via the Laparoscope, Surgeons Target Disease, Spare Normal Tissue

By Debra Bernardo

Unmanageable hypertension sent Ray into the hospital for surgery to remove a problem kidney, the cause of his disease. Ten days later, he went home with a seven-inch scar, enough pain medication for the usual six-week recuperation and thousands of dollars in medical bills.

Joe checked into another hospital the same evening Ray did. Because of a similar kidney problem, he too was having his kidney removed the following morning. Three days after surgery, he walked out of the hospital with some barely perceptible scars, pain medication for a seven- to 10-day recovery period and substantially lower medical bills than Ray.

The difference between these two hypothetical patients is that Ray's kidney was removed via the conventional method. Joe was able to have his removed through laparoscopy.

The lighted tip of the laparoscope points the way for surgery.



A video monitor displays what the endoscope sees: Inside the abdominal cavity are the gall bladder (upper left) in front of the blue-red liver. Dissecting forceps strip fat from the cystic duct.

Laparoscopy — a surgical technique that enables surgeons to insert a miniature camera into the abdomen and then operate through several additional tiny incisions instead of one large one — has brought about a metamorphosis in medicine. Patients recover faster. They suffer less pain and need less medicine. Their

scars are barely noticeable. And to cap it off, the size of their hospital bills drops dramatically.

Gynecologic surgeons have used laparoscopy for years, with little in the way of public reaction. But when general surgeons began wielding the laparoscope to remove gall bladders two years ago, the procedure catapulted to unparalleled levels of popularity.

The procedure is now in such demand among gall bladder patients, and there are well over half a million each year, that doctors by the thousands are investing in the necessary equipment and enrolling in special training courses. And they're not stopping with gall bladders.

Last June, a team of surgeons at Washington University School of Medicine and Barnes Hospital used the minimally invasive technique to remove the diseased kidney of an 85-year-old woman. It marked the first time that a solid major organ had been removed through laparoscopic surgery. That case took nearly seven hours, much longer than the con-

ventional surgery, but since then the team has successfully done three additional laparoscopic nephrectomies, whittling the time down to four and a half hours.

"Laparoscopic surgery is much kinder to the patient than open surgery," says urologist Ralph V. Clayman, M.D., who with urologist Louis Kavoussi, M.D., and general surgeon Nathaniel Soper, M.D., composes the team that performs the nephrectomies. "A lot of the morbidity of surgery is not from the organ we take out, it's from the manner in which we get to the organ and the way we leave the scene. It's an entry and exit problem, and if we can remove the organ through several small incisions instead of one large one, then the course of the patient is going to be vastly improved."

The perfect example is laparoscopic cholecystectomy, or gall bladder removal. In the standard operation, the gall blad-

der is removed through a large incision, Soper explains. Patients are hospitalized for three to six days and restricted from strenuous activity for three to six weeks, incurring significant expenses both in hospitalization and in time lost from work. Soper began performing laparoscopic cholecystectomies in 1989 and has done more than 280, all but four successfully.

"With the laparoscopic procedure there's far less pain, and patients appreciate that," he says. "Cosmetically it's more appealing, using four incisions less than a half-inch long each rather than the one long one. But more importantly, hospitalization usually is reduced to less than 24 hours, and patients can return to full activity within a week." The technique is particularly beneficial for obese patients and the elderly, he adds, because it's less demanding physiologically.

Removing the gall bladder with a laparoscope takes about 90 minutes. Surgeons make the first of the half-inch incisions in the navel. They fill the abdominal cavity with carbon dioxide gas to gain better visibility inside the body cavity, then insert the laparoscope — a long metal tube outfitted with a miniature television camera — and attach it to a monitor, which they watch to conduct the remainder of the operation.

Smaller metal tubes are placed in three additional incisions, one that is a half-inch and the other two a fourth-inch long. Using these tubes as conduits for their instruments, the surgeons separate the gall bladder from the bile ducts and the liver. Once the gall bladder is freed they deflate it, simply drawing off the bile with a needle, and slip it up and out through the navel incision.

Removing the kidney with laparos-



The laparoscopic surgery team of urologist Ralph V. Clayman, M.D., surgeon Nathaniel Soper, M.D., and urologist Louis Kavoussi, M.D.

copy was Clayman's idea. "For years I've been involved in taking out large kidney stones, and we've devised methods so that we can take out a kidney stone literally the size of your fist through an incision no bigger than the tip of your finger," he says. "And what's bothered me, and some of my colleagues, is that if I can take out a kidney stone that large through an incision that small, why could I not take out a kidney, which is also the size of your fist, through an incision that is no bigger than the tip of your finger? That has been the goal."

The method he devised, working with Soper and Kavoussi, is an ingenious variation of the laparoscopic technique. The surgeons distend the abdomen with carbon dioxide, make five tiny incisions, put the television camera in place and sever the kidney from its surrounding tissue and vessels. Down one of the tubes they put a specially designed sack and open it inside the abdomen. They maneuver the kidney into the sack, pull the drawstrings taut so that the kidney is enclosed, then pull the drawstrings and neck of the sack out of the abdomen onto the skin. Into the neck of the sack they insert an instrument called a tissue morcellator, designed specifically for this operation. The morcellator not only chops up the kidney tissue but also "vacuums" it out until the empty sack can be pulled from the abdomen entirely. Then the incisions are closed.

The technique may someday become a standard for kidney removal as well as for gall bladders. Clayman comments, "We've seen gall bladder removal all of a sudden reduced from full abdominal surgery to a procedure that is routinely performed on an outpatient or overnight basis. These patients are eating the same evening of their surgery, they go home the next morning, they're back to work in a couple of days.

"The same type of scenario could eventually happen with the kidney," he continues. "However, we need to become better in our techniques — better in our dissection — and we need some improvements in our instruments. But I have no doubt that that day is coming."

The response of renal patients to laparoscopy has been similar to that of gall

bladder patients: their recovery time is shorter, their discomfort is less, they need less pain medication, and they return to their usual activities within one to two weeks as compared to the four to six weeks needed after open surgery. But, Kavoussi points out, patients aren't the only ones to benefit from the new procedure. "From an economic standpoint for the whole country there's a lot to be gained, for insurance companies, hospitals and employers."

Hundreds of thousands of abdominal procedures are done each year, the surgeons point out, and the potential for laparoscopy is enormous. "The future of surgery is turning more and more toward less invasive procedures," notes Kavoussi, who is chief of the urology division at Jewish Hospital, part of the Washington University Medical Center. "I don't think all these changes are going to come within a year or two, but I think the patients are going to demand that we refine and develop these new techniques."

Already, better instruments are being built, he notes, including special staplers to fasten intestines so that bowel operations can be performed laparoscopically. And Clayman adds, "Any tissue that you can dissect in the abdomen and then put in a bag can be brought to the surface and morcellated."

Advances are being made rapidly. In November, the Washington University/Barnes surgeons began laparoscopic surgery to excise spleens and segments of bowel in pigs. The work is going very well, Soper reports; the surgeons are perfecting their skills and hope to apply the promising technique in humans within the next few months.

There are drawbacks to laparoscopic surgery. Chief is that most surgeons aren't familiar with the technique, so those who want to learn it must purchase expensive new equipment and enroll for costly and arduous training. And while more and more courses are available, there is little in the way of controls that would guarantee uniformity in training. An inevitable consequence of the rush to learn has been that some patients have died as a result of laparoscopic surgery. Far more have experienced bile duct injury and other serious complications.

For patients who want laparoscopic surgery, the obvious issue is credentials: How do they select a qualified surgeon? Soper's recommendation is to ask what training the surgeon has undergone and how many procedures the surgeon has performed. "The first few operations a surgeon does are definitely in the steep part of the learning curve," he says. "It's very difficult at first. Over time it becomes less and less difficult. But I would be hesitant to have this done to me if the surgeon hadn't done at least 10 of these operations before."

Soper believes any course in laparoscopic surgery should offer hands-on training so that the surgeon can practice the procedure in an animal model. Also, he says, the newly trained surgeon's initial cases should be proctored by a physician familiar with the laparoscopic technique. "The video eye/hand coordination inserts a whole new element into it for most surgeons, and that's something that has to be learned," he comments.

The video revolution has spawned a transformation in surgical technique, say the Washington University surgeons. "What you're seeing is the evolution of surgery as a magic bullet," Clayman says. "Medicine is a treatment of systemic illnesses, so you need to develop medicines that will treat the disease but not harm the patient. Surgery to a large extent is a treatment of localized disease, and for years we've approached that with a knife, to remove the diseased organ.

"The problem with traditional open surgery," he continues, "is that the incision results in significant morbidity to neighboring tissue. Now, with the development of the laparoscope, surgery has become a highly accurate magic bullet, targeting the disease but sparing the neighboring normal tissue and not harming the patient at all." ■

PROBLEM CHILD



Infant Psychiatry as Preventive Medicine

By Kleila Carlson

/troubled parent

The child seemed intentionally oppositional, refusing her mother's requests at home and making a scene whenever they were together in public. The mother, frustrated and nervous, was afraid to venture to the grocery store or shopping mall for fear the child would defy her or throw a fit. She had every intention of letting her daughter know who had the upper hand, but the child, just 18 months old, so rattled her that it was clear who was in control.

Enter Joan Luby, M. D., infant psychiatrist at Washington University School of Medicine, whose interest is assessing the psychiatric and developmental progress of irritable infants and testy toddlers. Last October, she opened one of Missouri's first infant clinics at St. Louis Children's Hospital at Washington University Medical Center. In the clinic — one of two in St. Louis and approximately 30 around the country — Luby studies troubled and troublesome children and their parents to learn more about the psychiatric syndromes very young children develop and how the intricate interplay between parent and child helps mold an emerging personality.

By observing parents and children at rest and at play and deciphering the eye contact, facial expressions and gestures they share, she can tell if they are misreading each other and suggest ways to prevent miscommunication. "By watching a mother interact with her baby, you can make inferences about the bond or attachment that has developed," Luby

In the playroom of the infant psychiatry clinic located in St. Louis Children's Hospital, Joan Luby, M.D., assesses relationships between parents and their children. Lauren Lazarus, 21 months old, displays a bright and happy capacity for interaction.

explains. "How does the mother hold the baby? Is she stiff and nervous or does she cradle the child close to her? How does she feed the baby — by forcing the bottle into the child's mouth or being more sensitive to the baby's needs?"

Like trampled seedlings, the budding lives of infants and children can be bruised

Like trampled
seedlings, the budding
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trauma.

by psychiatric trauma. In the past, these injuries often festered until the child reached adolescence and was thrust into therapy in an attempt to abate established behavior patterns. But today, therapists can begin healing earlier — sometimes at age three or four months — with treatment designed to conquer the problem before the problem conquers the child. Children who are shy, avoidant, defiant or depressed may be helped with therapy lasting anywhere from weeks to more than a year.

Psychiatric assessment in this age group requires a developmental perspective because development is the major task of the preschool period. "Psychological problems that occur during this time will often have an impact on developmental progress," notes Luby, the first infant psychiatrist at the medical school and an instructor in psychiatry. "That is

why one component of evaluation is often a developmental assessment in addition to a psychiatric assessment.

"One of the significant features of infant psychiatry is the idea and hope that it can become a form of preventive psychiatry," says Luby. "We're hopeful that interventions can be made at these very early junctures and that they will aid in forming healthy relationships between parents and children. That could be an investment in the prevention of later problems."

Because young children are less rigid and fixed in their behavioral patterns than their elders, Luby says it may be possible to "nip problems in the bud." Parents, too, may be more psychologically malleable during their children's early infancy and can learn appropriate behaviors to improve an unhappy relationship.

Though great insight has been gained into the treatment of disturbed and disruptive youngsters, infant psychiatry itself is still a child. Less than 20 years old, it is an interdisciplinary field uniting the knowledge and expertise of developmental psychologists, pediatricians and child psychiatrists. Because of its tender age, Luby says it falls short of more established areas of medicine in terms of research, diagnosis and treatment. And she adds, there is virtually no information on infant diagnoses in the medical texts used in treatment.

"It's important to realize that this is a field that is still very much in its formative stages," Luby says. "Child psychiatry is behind adult psychiatry, and in the same vein, infant psychiatry is even more in its infancy. The psychiatric diagnostic manual (DSM III-R) in general is an inadequate tool for diagnosing infants and children, so we see a lot of children with problems that are not well described.

There aren't many well-defined diagnoses in infancy, and there are only a couple of diagnoses in the DMS III-R that refer specifically to children three and under."

Separation anxiety disorder, a recognized diagnosis, is a syndrome Luby sees regularly in the clinic. She describes a four-year-old who cries, screams and throws a tantrum every morning as the mother readies the child for preschool. The child can't separate from his parents and doesn't tolerate the parents leaving the house without going into a rage. If

not go. When it's time to eat dinner with the family, they refuse. And it's a type of refusal to cooperate that is pervasive."

How can one so small have enough control to undermine and manipulate his parents? Luby says the perceived power a child has depends in part on the parent's subjective impression of the child and the parent's level of tolerance. She relates the story of a two-year-old who came into the clinic and was described by his mother as a "hyperactive terror." Luby's evaluation of the child could not support the mother's description. She

"Often, those kinds of perceptions of a child have to do with the parent's misreading of the child's signals. Of course, children can be manipulative to get what they want, but I think children become manipulative when their needs aren't being met in more healthy ways."

Also important to the parent-child relationship are a parent's expectations of a child's personality or temperament. As part of her research, Luby is surveying new mothers on how they expect their babies to behave and how that expectation affects the quality of their relationship after the child's first year. She will be questioning mothers within 12 hours of giving birth, then comparing how the baby behaves to the mother's written response and measuring whether the mother's expectations match the baby's actual temperament.

"I hope to measure the quality of the mother-child relationship at a later point by bringing some of these people back into the clinic and observing them in a semi-structured play interview that we code to obtain a quantitative assessment of the harmony of their relationship."

In addition, Luby is collecting data on whether the combination of temperaments between parent and child in some way predicts psychiatric problems the child may develop later.

Inquiry into temperament and the idea that temperamental discord may inherently exist between parent and child originated with two famous New York University Medical Center child psychiatrists, Stella Chess and Alexander Thomas. They conducted the New York Longitudinal Study, following a group of people from infancy into adulthood. Through that work, which began in the 1950s, they arrived at the theory of temperamental mismatch, an area Luby wants to probe further to learn how problems arise between very young children and their parents.

"The concept of temperamental mismatch implies that there's something about the quality of the child's behavioral style that does not fit well with the parent's behavioral style," Luby says. "The parent's personality style and the child's personality style are not harmonious. Therefore, they have a lot of difficulty relating to each other, getting along



Behind one-way glass, Luby and her colleague, developmental psychologist Kim Hron-Stewart, Ph.D., make a videotape record of parent-child interactions.

the mother is successful at getting the child to preschool, he refuses to engage in activities and doesn't fit in. The parents are extremely frustrated because the child has the same reaction to being left with a babysitter, going to a birthday party or even over to a friend's house to play.

Another common problem is childhood oppositional defiant disorder, in which Luby says a child is totally uncooperative and refuses to do anything the parent says. She works with children three and four years old who are so strong-willed and stubborn that they control their parents and undermine the parents' ability to set limits.

"These children refuse to comply with any parental directives at home. Normal parenting techniques just don't work," she says. "When it's bedtime, they will

found the child to be cooperative and said his play and interactive behavior were appropriate for his age, but he had the normal two-year-old quality of being demanding. Luby observed the child on multiple occasions over a period of weeks, with and without his mother and alone at play, to rule out the chance that his behavior may have been influenced by the unfamiliar clinical surroundings.

"This was a case in which there was a misperception on the part of the parent," Luby says. "A parent's perception of the child is often a very important part in the etiology of parent-child conflicts. Very often, parents come in with the idea that their child is mean, malicious and trying to anger them. But in my experience I have never met a truly malicious two-year-old.

and deriving the pleasures of the child-parent relationship that most people hope to enjoy."

The key to resolving such an unsatisfying situation is to help the parent find

the child that stimulates negative feelings and memories of painful past relationships," Luby explains. "We want to know what happens to the parent emotionally that contributes to these reac-

She also encourages parents to learn all they can about normal childhood development because there are common difficulties that arise in the early infancy and preschool years.

"It's not abnormal that a nine-month-old will have stranger-anxiety and that a two-year-old will be very strong-willed and torn with the issue of separation," Luby says. "It's helpful to know the normal psychological hurdles that a very young child has to get over. Parents have to trust their own feelings, too. If they are feeling frustrated to the point that they experience rage or loss of control, then they should probably seek help."

Anne Benham, M.D., director of infant psychiatry at the Children's Health Council in Palo Alto, Calif., says the principal goal of infant psychiatrists is to help parents help their children.

"Today, more children than ever start out at risk because of social circumstances, prenatal exposure to drugs, abuse, neglect or stress within the family," says Benham, who is clinical associate professor of psychiatry at Stanford University School of Medicine. "We also ask more of our children: to be more independent, to function in groups for longer periods at a young age and to spend less one-to-one time with an adult. Our goal as infant psychiatrists is to optimize the ability of the parent to understand and respond to the child contingently, by reading the child properly and providing warmth, nurturance, love and affection."

At the same time, Luby says infant psychiatrists work with the hope that they are providing a form of preventive medicine. She says current research indicates that certain aspects of infants' and preschoolers' relationships with parents seem to have some predictive value in determining how children function socially and how competent they are in later childhood.

"Some of the problems of early infancy or strengths of early infancy might predict later performance, but it would be much too bold to say we know infant psychiatry is in fact preventive medicine," she says. "The best we can hope for is to provide intervention at a younger age with the goal of altering the course for these children." ■



Lauren and her mother play together while infant psychiatrists observe.

more successful means of negotiating the relationship with the child. Luby says one way to do this is to help the parent dispel any negative feelings he or she may associate with the child as a result of past personal experience. Often, poor relationships exist because the parent associates the child with a bad memory, like a hateful sibling or a harsh mother. This concept, originated by the late Selma Fraiberg, a renowned social worker at the University of Michigan, is known as "ghosts in the nursery."

In these cases, "We want to help the parent gain insight into what it is about

tions that are so unsuccessful. And we want to interrupt that process." This does not involve working with parents in therapy, but rather working to uncouple the relationships with their children from negative feelings.

Although there is no proven method for successful parenting, Luby suggests that parents be empathic with their children. Be sensitive to how the child is feeling, and think about the challenges he might be struggling with. Be consistent with rules and limits and remember that punishment should not be done in anger but administered in a nurturing manner, she says.



When the invitation came, I responded without a moment's hesitation, although I had never before given a second thought to

reunions of my medical school class. I filled out the necessary forms, including hotel reservations for Ida and me, and then sat back and wondered about my sudden enthusiasm for the reunion.

One thing seemed clear. I was fortunate to be healthy and active 50 years after medical school graduation. From alumni publications over the years, I knew that a number of my class were not so lucky. I wondered how many of our class would be there, how many alive.

I don't know if it is true for other professions, but in medicine the years of medical school create a powerful bond among the members of each class. It was not only in the sharing of a unique adventure that began on the first day of classes in the anatomy lab when we uncovered the body which we would dissect piece by piece during the year. Nor was it only in the incidents, some funny and some painful, which we endured over the course of the four years, nor in the unrelenting struggle to master enormous amounts of material. All these entered into a shared feeling of having successfully lived through a trial of life. Perhaps this is true of other professions, but none could measure up to the very special nature of becoming a physician.

From day one we were immersed in what is most important to all of us, our bodies. We started where we would naturally least wish to — with its dissection. The cadaver was dried and distorted, and the formaldehyde injected to preserve the body for our use soon penetrated our books and our clothing. It seemed that while we had entered medicine to maintain and preserve life, our introduction to it was through death. We worked at the cadaver's skin with our scalpels and forceps and exposed the underlying tissues, the nerves, the veins, the arteries, muscles, tendons ... we really were uncovering ourselves. This was what we were like, this was what lay under our skins. We became one with the cadaver. Life and death in utterly concrete terms made up the meaning of the first year; we were alive, and under our fingers lay death.

The intense preoccupation with one's body and the daily confrontation with death as a preliminary to the larger task of saving lives left their imprint for all time. As young, energetic and ambitious young men and women, it was natural for us to relieve the anxiety that was always present. I recall episodes of bizarre horseplay that clearly served to discharge and to deflect mounting stress. It was a shared anxiety not unlike that facing soldiers in combat, where concerns are about living and dying. Like such veterans, we share an unspoken bond to this day. I would be remiss if I did not mention that the dissection was also a daily uncover-

ing of the miraculous large and small parts, their connections and interconnections, that so readily aroused inner questions about the origins and marvel of it all.

The invitation to the reunion also stimulated a flood of memories of people and events. It seemed impossible that 50 years had passed, that we had moved from being young men and women to being old men and women. We can mark off the 50 years in terms of the many events



Ida and James Mann, M.D.

and dates of medical school and in the years that followed up to the present, but there is still no sense of 50 years of time having passed. To complicate matters, for those of us whose 50 years have been of reasonably good health there has never been any real sense of our growing older. In the presence of good health there is no sense of *feeling* older. Changes in the reality around us can and do remind us of the passage of years.

Between 1940 and the reunion, we had been in St. Louis and at Washington University twice: once for the graduation of our daughter in liberal arts in 1965 and again for the graduation of our oldest

50 years

son from the medical school in 1975. I had not visited the medical school on either occasion, and now I wished to see what, if anything, was left of what had been there 50 years ago.

In the years from 1936 to 1940, St. Louis seemed very much like a small town. Barnes Hospital was a low three- or four-story building; Childrens' Hospital was taller but not larger, and only the Oscar Johnson Institute with its nine or 10 stories seemed to be a very large building. All major classrooms and laboratories, the bookstore, cafeteria and library were located in the two buildings which still stand as the main entrance to the medical school. Directly across from these two buildings was a miniscule parking lot to accommodate the few cars of the faculty and students and the motorcycle of Dr. Jean (or was it Jeans), who was physician to the students. There was Jewish Hospital and St. Louis City Hospital where we wore face masks to catch the coal dust on dark winter days.

Flooded with memories in the several days before leaving for St. Louis, my mind raced so that sleep was hard. I felt the return of so many vivid memories brought with it a return of the anxiety of that first year, and that it was enhanced by my efforts to comprehend the span of time from then to now. I was 23 years old when I entered medical school, and now I am 77. When I met Ida in 1939 she was 21, and now she is 72. Time is an abstraction, and we have to use other means to appreciate its passage.

Our 18th-story room at the downtown Marriott looked down on Busch Stadium. It is a handsome structure and nearby we could see the soaring sculpture of the GatewayArch. The first morning we took the shuttle bus to the medical school to

register. Nothing was small anymore. Barnes was an enormous high-rise institution, and the labs that I had known were located in a whole new series of buildings. A fourth-year student guided us first to the magnificent new library. I remembered the old one as so much smaller, old fashioned with none of the technological library devices, but comfortable and perhaps less overwhelming. He asked if we would like to visit the

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"anatomy suite". (I gathered that now, laboratories are only where one manipulates chemicals and machines.) So much had been redone and rearranged over the years that I was not certain that this was the same anatomy lab that we had labored in. It surely smelled the same.

The specific event for our class came in the evening, when each reunion class had its own dinner. Forty nine of the class had expressed intentions of coming, but only 23 actually appeared. I wondered whether some of those who intended but failed to come had been beset by the same

surge of anxious memories as I. I looked over the gathered group and was deeply moved by the concretization of time that screamed at me. Clearly this was a group of old people. Old! Old! The future is now! When we graduated, a world of boundless time awaited us. Meeting again after 50 years of separation became a confrontation of our own mortality. Not that I had not been unaware of my mortality, but this became a massive affirmation that it would not be too long before the class of 1940 would become a matter of record only.

The last event of the reunion was a dinner and dance for all classes. As the honored class, each of us was called forward to receive a nicely designed and enclosed diploma, making us life members of the alumni. The secret message was that we were too old to be dunned any longer for dues. When the festivities were over and dancing began to a big band of "Hot Docs," none of my class moved to the dance floor. Instead, there were last handshakes and well wishes and out of the room.

Ida and I went back to our room that was illuminated by the brilliant lights of the baseball game about to end. It all seemed fitting somehow as a mark of the bright, even brilliant years of the medical student. And then the lights at the ballpark dimmed and the game was over. By the time we got to bed, the stadium was dark. Fans could be seen still hurrying along the street; the flow of cars had slowed to a trickle. We looked at each other and saw once more that we had grown old ... fortunately and happily together. We know that the years have passed to make us old, but we still don't know where they went nor how to measure the 51 years and 10 months that we have known each other except by people and events. Our children take over, we revel in grandchildren, and the cycle renews itself. ■

Editor's Note: "Fifty Years Later" is the reminiscence of James Mann, M.D., who graduated from the School of Medicine in 1940, the halfway point in the institution's history. Widely published in his field of psychiatry, Mann continues to see patients and to travel internationally. He and Ida live in Waban, Massachusetts.

50 years later

By James Mann, M.D.

Remote Possibilities

When fourth-year medical student Lois Bauer left for an eight-week externship in February, she knew she was about to become sick. Of solid constitution, she anticipated a quick and complete recovery.

In preparation for her externship, Bauer had been using the cassette deck in her car to listen to tapes of Swahili, the native language once she passed through Nairobi and Webuye to arrive at Friends' Lugulu Hospital in the remote mountains of western Kenya.

But a concern remained, overshadowing the intestinal upset that would come with Kenyan water and the isolation: Bauer anticipated that her experience might shake the foundations of her values and beliefs. "I'm trying to prepare for a shock, because I have only a romantic view of east Africa — beautiful scenery full of exotic wildlife. But I know that lots of people are dying because not enough resources exist to save them," she said.

AIDS, malaria, tuberculosis, obstetric complications, psychiatric illnesses, a variety of parasites and fatal dehydration resulting from severe diarrhea were among the health problems she expected to encounter. Primary care for those conditions and plenty of surprises will fall to Bauer, who has been assured that she will be doing, "as

much as I feel comfortable with. I may even help to supervise the pediatrics ward, and I know I'll be on night call, rotating with the others."

Those others are two physicians — one a board-certified family practitioner from the Quaker church in

sionary work is enduring: "When I was a child, in my own church I heard of Albert Schweitzer's work, and it inspired me. I also have a love for adventure that was fueled by undergraduate anthropology courses. I saw the big need and wondered

"When I was a child, in my own church I heard of Albert Schweitzer's work, and it inspired me. I also have a love for adventure that was fueled by undergraduate anthropology courses. I saw the big need and wondered how I could make a difference."

the United States, the other a Kenyan national — and two physician's assistants. As a group, they oversee the 110-bed hospital that was begun to fill a need seen by the Kenyan Quaker church.

That origin was important in Bauer's choice to volunteer her services, a decision she made with great care. "I wanted a place that had sprung up from within, not one applied from outside," she said. Her interest in mis-

how I could make a difference. Then I heard about all the doctors who dedicate their time to health care in the Third World."

In November 1989 she began looking for a Third World hospital with both a need and a place for her. Not being fluent in Spanish, she required a location in which English would serve basic communication needs.

That search led her to an organization called MAP

International (the acronym is for Medical Assistance Program). An interdenominational Christian organization, MAP International distributes medical supplies to hospitals in developing countries and provides grants to North American medical students. Eventually, she became one of this year's 45 fellowship recipients.

The fellowships, known as MAP/Reader's Digest Fellowships, are made possible by a grant from the late DeWitt Wallace, founder of Reader's Digest. They provide for travel to rural mission hospitals and clinics in developing nations. In service to some of the world's poorest people, recipients donate their time and medical training. Students are selected to receive the fellowships on the bases of academic excellence, personal development, motivation, cultural adaptability, world concern, desire for voluntary service and a sincere interest in medical missions. Bauer also has received funds from her church, Memorial Presbyterian.

The trip is not without its hazards. Travel, especially internationally, contributes a baseline risk these days, and Kenya, the nation with the world's fastest doubling rate, struggles with tensions spawned by encroaching modernization and westernization. But Lois, the daughter of Dr. Walter and Mrs. Marcia Bauer of St. Louis,

said she had heard of no outright violence directed against Americans even in Nairobi, where risks are the greatest. Her parents, she said, are, "supportive and proud, but probably worried too."

The rewards she anticipated offset any such risks. "I'll see conditions and complications I've never seen before. It should help me better realize what I've learned," she said. "Although most physicians want to make a difference wherever they

Bauer's classmates are currently in South Africa as part of an exchange with South African medical students.

But few will end up having their clothes washed out in an African village's stream. The challenge of the living conditions was almost as attractive to Bauer, an avowed adventure-lover, as the prospect of taking four additional weeks of travel in east Africa after her hospital service. That month will include visits to

Time spent there should salve any lingering health effects of a visit to one of the world's most remote places and provide for reflection on a hard-won understanding of the state of the world's health and the distribution of its resources. ■

"I'm trying to prepare for a shock, because I have only a romantic view of east Africa—beautiful scenery full of exotic wildlife. But I know that lots of people are dying because not enough resources exist to save them."

practice and I am no different, realistically I know I will gain more from the patients, nurses and physicians than I will contribute."

A close friend, Thuy Bui, encouraged Bauer after returning from a month working at a rural hospital in Black River, Jamaica. Thuy also recently completed an externship with the Indian Health Service in South Dakota. And six of

Kenya's famous game preserves and particularly beautiful beaches.

Lois Bauer



Doing What Can Be Done

To illustrate what he is saying, Robert C. Drews, M.D., reaches over his head, plucks an imaginary object from the air and deposits it down at eye level.

It's an informative gesture; much of Drews' nature involves bringing his ingenuity to bear on practical problems.

For example, the building in which Drews' ophthalmology practice has been located for 25 years was one of the country's first medical office buildings dedicated to a single specialty. "Most office buildings have dark halls, dark waiting areas and bright offices full of windows," Drews says. "The ophthalmologist needs just the opposite. So we turned the building inside out and built it around a central atrium."

Patients negotiate via natural light, and Drews controls the illumination in the examination and treatment area.

The office occupies half of one floor of the building, but the work gets done largely in one big room with a dozen diagnostic and treatment stations where ingenuity also has changed the traditional organization.

"Patients all are seen here together in this one room instead of in small rooms separated by space-wasting halls," says Drews. "They lose some privacy, but when you've come for new glasses



Robert C. Drews, M.D.

"My idea was that we should nurture the thought that students come here not just to study but to become alumni of Washington University."

it's not a big issue." And there are benefits: no lost time moving between rooms; patients able to see that while they wait the doctor is busy elsewhere, not taking a coffee break, and a shared sense of getting help that eases the nervousness of those with more serious problems.

In that big room — its one long wall lined solidly with books — Drews sees about 40 patients a day. That's not an unusual number, except that he sees them before noon, at which time attention shifts to research, writing, consulting and teaching. To allow him to operate the practice in only the mornings, Drews devised an office management system that runs on personal computers.

"Often, it takes as long for a physician to record and transcribe a patient's information as it does to deliver the treatment. But when I'm with a patient there's a scribe there, too, with a keyboard. What I say is what gets entered into the file," Drews explains. Any notations that are carried over from a previous visit are duplicated by the computer, with changes made via simple word processing entry.

The system, called Ivy, was developed over seven years beginning in 1982. "It kept me up until three in the morning, learning programming and then doing it," Drews says. The software has since been sold to a subsidiary of the Nestle company, to which Drews serves as a consultant.

The invention of several surgical instruments and treatment devices, all designed to serve the patient better, further attests to Drews' ability to affect change. In addition, he has authored more than 350 professional papers, book chapters and books.

For the opportunity to explore and fulfill his abilities, Drews cites a debt to Washington University and the School of Medicine where he earned undergraduate and graduate medical degrees, performed his ophthalmology residency and served as chief resident in 1958-'59. His father, mother, two sisters, a brother and two brothers-in-law all were educated at Washington University, and Drews says he thinks of his medical office as a sort of extension of the campus.

"The ophthalmology department doesn't consider it when it figures square footage, but then they don't pay for it, either," he quips. Drews has resisted suggestions that he drop the word "clinical" from his title of clinical professor of ophthalmology and become a full-time member of the faculty. "It's expensive to be independent, but I enjoy it," he says.

His independence does not reduce the contribution he makes to the university. Drews and his wife, Lorene, have expressed their concern for the School of Medicine by funding the Drews Staircase in the new library in memory of his father, Leslie C. Drews, M.D. '29. They also give generously to sup-

For the opportunity to explore and fulfill his abilities, Drews cites a debt to Washington University and the School of Medicine where he earned undergraduate and graduate medical degrees, performed his ophthalmology residency and served as chief resident in 1958-'59.

port medical student scholarships, loans and other areas. The Drews' are Life Members of the School of Medicine Eliot Society.

Currently on the Board of Trustees, Drews also serves as president of the Alumni Board of Governors, an oversight body for all of the institution's alumni groups. To that office Drews also brings his thinking cap. "The staff — those people who really do the work — asked what special emphasis I'd like to see. My idea was that we should nurture the thought that students come here not just to study but to become alumni of Washington University," he says. The notion emphasizes completion, puts a new perspective on student activities and builds the idea that alumni support their institution, Drews says.

The concept began for Drews, he says, during a hot and humid registration day in

the mid-'60s. "We set up a booth at the end of the exhausting line offering free soda under a banner that read, 'Welcome Future Alumni.' That simple greeting really boosted morale. It's the sort of thing that can be done." Which, in the case of Robert Drews, is the same as saying the sort of thing that gets done. ■

The Alumni Report

On The Main Line

A phonathon has two distinct faces. In its incarnation as a cost-effective fundraiser, it is a business of cold numbers: half of the people will be at home; 10 calls per hour per person is a good average; 15 percent of those who have not contributed before will make a pledge. In its other

gathered in the phonathon room of Alumni House on the evening of February 5th, most had never volunteered before, and the thought of calling up strangers to ask for pledges generated nerves. Debbie Berenson, a second-year student from New Jersey, eased her classmates fears. A veteran of five previous cam-

one personal long distance call at the end of the evening. Debbie had called on behalf of the business school and liberal arts, but this was the first time she would work as a volunteer for a program in which she was directly involved.

By 7 p.m., dinner and casual conversation were over

and offered tips: start with east coast addresses and work across the country to the west; ask contributors to commit to a specific pledge; hang up on answering machines.

The occupational therapy program, a small but growing school, has almost 800 alumni. The goal of director Carolyn Baum was to reach them all. Those who could not be reached by phone would be mailed a card. "Last year, we raised a total of almost \$15,000 for our scholarship program," Baum said, the same fund to which this year's campaign is directed. Of the total, about \$6,800 was raised by phonathons and annual fund letters. Baum also cited the goodwill value of the phonathon as a way to keep in touch with alumni, an adjunct to the school's recently begun newsletter, *The Link*.

At 7:10, the telephones of alumni living along the east coast began to ring, and students in the basement of Alumni House stumbled through their first presentations, consulting the scripts provided as suggestions. People on the other end of the lines soon made the scripts worthless, except as support in a crisis of silence. Right in the middle of the pitch, alums wanted to know about Mr. Tubbs, a long-time faculty member. They asked about the students' personal plans. They recalled their days in the occupational therapy pro-



Debbie Berenson places a call to an alum.

embodiment, the phonathon is not a business at all, but a friend-raising exercise that establishes personal contact between students and alumni, building honest good will.

When a dozen students in the medical school's Program in Occupational Therapy

paings, she assured them that the calling was fun and easy.

Debbie had called before as a way to earn funds for activities for her sorority. Each student working in a phonathon earns \$10 for his or her group's coffers, along with a tee shirt, dinner and

and it was time for business. Hannele Haapela, the medical school's director of annual giving, reduced tensions by suggesting that the callers engage in pleasant conversation and supply news of the school. She also explained the format of the pledge cards

gram, and they talked about family.

Conversations developed, and student faces brightened. The pledge cards became almost secondary as friendships developed along paths of mutual interest. One student announced proudly that she had just spoken to a graduate of the class of '31. Another student who got four contributions on her first six calls engaged in talk about what she plans to do upon graduation.

The business half of the phonathon was not forgotten: callers asked for contributions



In the phonathon room of Alumni House, occupational therapy student Richard Legaspi signals that he has taken a pledge.



Jill Whitson and well-organized card stacks.

as they had been advised to do, but the question fit naturally into conversations. Debbie was right; somehow, it was fun to call strangers. "Hey," one student said excitedly into her phone, "you can be a member of the Century Club for only \$100."

The evening's student assistant, Ruel Garcia, is an old hand at phonathons, man-

aging two or three every week. Many times he's seen the transformation from nervousness through ease to jubilation as the evening grows from chore into personal success, interpersonal success and fundraising success all in one. "Students from the medical school always do really well. MDs, PTs, OTs, they all do great," was his observation.

Debbie Berenson's experience was not helping her on one score. Most of her calls were what are politely called "declines" in the phonathon lexicon. The contacts she made were all saying "no." Outgoing and well-spoken, Debbie got along fine with the alumni she called, but the random shuffle of the donor cards left her without a single

pledge by the time some of her classmates had six and eight. "Or maybe it's my New Jersey accent," she said.

At 7:45, the tote board, kept updated by Ruel Garcia, showed that the phonathon would be a business success. Nearly \$1,500 had been pledged in amounts ranging from \$5 to \$100. The room hummed with relaxed talk. Administrators from the OT program carried drinks to students. Hands went up with pledges, and Ruel moved around the room, collecting and transferring information to the board. Nervousness was forgotten.

When the campaign ended at 9:00 p.m., nearly 280 alumni knew something more about what's going on back at Washington University.

The 12 students knew considerably more about their own natures and those of others who had chosen the same field. And the treasury of the scholarship fund had swelled by almost \$3,700. On both of its faces, the phonathon wore a satisfied grin. ■

CLASS NOTES

'30s and '40s

E. Norris Robertson, Jr., M.D. '37, and his wife, Mary, will celebrate their 54th wedding anniversary in 1991. He is in the private practice of ophthalmology in Oklahoma City. Two children and four grandchildren complete the family.

Alexander A. Mueller, M.D. '38, writes to report that he is still in active practice in the city of Santa Monica, California.

Joseph L. Ivins, M.D. '41, reports that his daughter, Marsha, was a mission specialist on the January 1990 flight of the space shuttle Columbia.

Guy D. Callaway, M.D. '44, retired from the practice of medicine in February 1989 to spend time at his lake home, visit with his daughter, play golf and read.

George W. Prothro, M.D. '45, recently was honored with the Outstanding Contribution to Public Health Award presented by the University of Oklahoma Health Sciences Center. The award came in recognition of outstanding support over a period of time to the health affairs of the State of Oklahoma.

Mary D. Bublis, M.D. '46, was named Health Care Professional of the Year by the Texas Governor's Committee for Disabled Persons. She received the award on October 26, 1990, in Austin, Texas.

'50s and '60s

Lowell Gess, M.D. '51, retired from ophthalmology practice at Alexandria, Minnesota in December of 1989, then did volunteer eye surgery in Sierra Leone, Zambia and Kenya, Africa. Gess and his wife planned a return to Sierra Leone for three months of this year.

Edgar Draper, M.D. '53, was presented with a plaque and a certificate acknowledging "with gratitude and appreciation the dedicated contribution and leadership" he has given to the University of Mississippi Medical Center. Draper has served as chairman of the psychiatry department for 15 years. The award was made on the occasion of the celebration of 30 years of life for the department and was made by Norman Nelson, M.D., vice-chancellor of the medical center and Gerald Turner, chancellor of the University of Mississippi.

David Ulmer, M.D. '54, writes, "Nancy and I have resettled in southern Arizona after five fascinating years in Asia where I served as dean of the faculty of health sciences and acting rector of the new Aga Khan University in Karachi, Pakistan."

Seymour C. Nash, M.D. '56, has been named chairman of the Department of Urology at Mount Sinai Medical Center in Miami Beach, Florida.

Gary M. Boelling, M.D. '63, has been employed by Cigna Healthplan of Arizona since 1986. In 1988, he was certified in geriatric medicine and named clinician of the year in Arizona. He also serves as head of the department of medicine, western area, Cigna Healthplan of Arizona and as chief of staff at the Sun City branch of Cigna Healthplan of Arizona.

John R. Fletcher, M.D. '64, became professor and chairman of the Department

of Surgery, University of South Alabama College of Medicine in Mobile, Alabama.

Sheldon S. Nicol, M.D. '68, has been elected president of the medical staff of Silver Cross Hospital in Joliet, Illinois.

Frank E. Lucente, M.D. '69, was named chairman of the Department of Otolaryngology at the State University of New York's Health Science Center in Brooklyn. His appointment was effective October 3, 1990.

'70s and '80s

Dennis C. Cooper, M.D. '71, was one of four Phoenix-area physicians honored for teaching in the pre-medical program at Arizona State University. Additionally, he received the Teacher of the Year Award from the house staff of Scottsdale Memorial Hospital. He has been in private practice in ophthalmology since 1977 in Scottsdale, Arizona.

William N. Sitz, M.D. '74, is in the private practice of internal medicine in Pendleton, Oregon, where he hunts, fishes and raises two daughters. He writes that he was "remarried to Michelle in November 1990."

Kathleen G. Todd, M.D. '76, reports from the Valdez Medical Clinic in Valdez, Alaska that she survived the Exxon Valdez spill, despite some hardship. Daughter Margaret Todd Embick was born November 2, 1990.

Carol Mitchell Simmons, M.D. '79, staff physician at Jewish Hospital's emergency room in St. Louis was part of the second group ever to become certified personal trainers through the International Dance Exercise Association. Also an IDEA-certified aerobics instructor and a board-certified emergency physician, she gave a step-training demonstration to hundreds when Washington University Medical Center celebrated going smoke-free on September 10, 1990.

Jorge A. Raichman, M.D., F.H.S. '81, is in the private practice of psychiatry in Houston, Texas. He and his wife, Deborah, have four children: Moshe Chaim, 9; Arie Leib, 7; Chaya Etoile, 5; and Judith Elisheva, 2 months.

Stuart Sherman, M.D. '82, completed a fellowship in therapeutic and pancreatic biliary endoscopy at Indiana University Medical Center in June 1990. He is currently director of pancreatic biliary endoscopy at UCLA Medical Center.

Steven Feinstein, M.D. '83, reports that he is happily married and "thrilled to announce" the arrival of son Michael Andrew on September 25, 1990. "Already saving for WUMS tuition in 2012," he writes.

Erika Dale Schuster, M.D. '83, returned to the United States in June of 1989 after a year traveling in southeast Asia and the Pacific. Settled in Portland, Oregon, she is busy as a practicing obstetrician and gynecologist.



The 50th reunion of the medical school class of 1940. Front: John Skinner, James Mann, William Curtis, Mary McFayden Bishop, Sydney T. Wright, William Read, Russell Hirst and Robert Garrett. Middle: Richard Landau, Roland Cross,

David Goldring, Leo Sachar, Robert Anschuetz, Ole Slind and Joseph Summers. Back: Llewellyn Sale, Jr., Joseph Mira, James Foerster, Leo Robinson, Willard Rowland, Marion Dale Bishop and Seymour Brown.

Thomas Chelimsky, M.D. '83, has accepted a position as assistant professor of neurology and director of the autonomic laboratory at Case Western Reserve University in Cleveland.

Edward S. Rollins, M.D. '84, and **Susan M. Rollins, M.D. '84**, have settled in Johnson City, Tennessee. Edward practices radiology, and Susan practices pathology.

Thomas S. Frank, M.D. '84, was appointed assistant

professor of pathology at the University of Michigan in June of 1989.

Karen M. Mathews, M.D. '85, recently returned from a two-year assignment with the U.S. Air Force in the Phillipines. She is currently practicing at MacDill Air Force Base, Florida, in a family practice clinic.

Thomas Chang, M.D. '85, married Joan Vondra in Rochester, New York in June 1990. Having finished a radi-

ology residency at Thomas Jefferson University Hospital in Philadelphia, he is now doing a body imaging fellowship at West Penn Hospital in Pittsburgh.

Nancy Bartlett, M.D. '86, began an oncology fellowship at Stanford University in July of 1990.

Jan Orlick, M.D. '87, is moving to Albuquerque, New Mexico, to practice emergency medicine at St. Joseph's Hospital there.

Rich Auchus, M.D., Ph.D. '88, and **Mary Lou Campbell, M.D. '88**, were married at Wellesley College Chapel on November 3, 1990. Rich will begin a fellowship in endocrinology/metabolism, and Mary Lou will train in hematology/oncology at Wilford Hall United States Air Force Hospital in San Antonio, Texas, after they finish internal medicine residencies at the University of Iowa.

FORMER HOUSE STAFF NOTES

Eli L. Borkon, F.H.S.

'46, of Carbondale, Illinois, retired in 1990 and was honored with a Mastership by the American College of Physicians.

Nurul Huda, F.H.S.,

attended the 24th International Congress of Ophthalmology in Singapore during March 1990. Travels to Japan, Hong Kong, Thailand, Bali and India were included in the trip.

O T H E R

Venice C. Partenope,

NU '25, remained active in nursing until she retired in 1978. Single, she works in politics and "remains loyal to Washington University."

Gladys F. Barker, O.T.

'38, was named one of 10 OASIS (Older Adult Service and Information System) award recipients by the St. Louis Post-Dispatch and KMOX radio. The award recognizes outstanding volunteer contributions to the St. Louis community.

Noel S. Berryman, NU

'45, reports that she retired in January 1990 from her position as nursing supervisor on the night shift after almost 34 years. She writes, "Am enjoying being able to sleep at night and having time to spend with my two-year-old grandson. How sweet it is."



M E D I C A L A L U M N I

CLASSES OF '36, '41, '46, '51, '56, '61, '66, '71, '76, '81

Reunion 1991

Mark your calendars!

May 2, 3, 4

Further information will follow.

Washington University Medical Center Alumni Association

Campus Box 8049

660 S. Euclid Avenue

St. Louis, Missouri 63110

(314) 362-8278

Geneva Newman, R.N., B.S.N. '69, has moved to Cherokee Village, Arkansas, a retirement community, having retired from the teaching of nursing at Frontier Community College School of Nursing in Fairfield, Illinois.

John M. Chamberlain, MAP '85, recently has been appointed medical staff liaison and chief development officer for Glenwood Regional Medical Center in West Monroe, Louisiana.

IN MEMORIAM

Melvin Goldman, M.D.

'43 (March), passed away on January 4, 1991. He had retired from practice on July 1, 1990, but continued to provide student health care at Washington University on Friday afternoons.

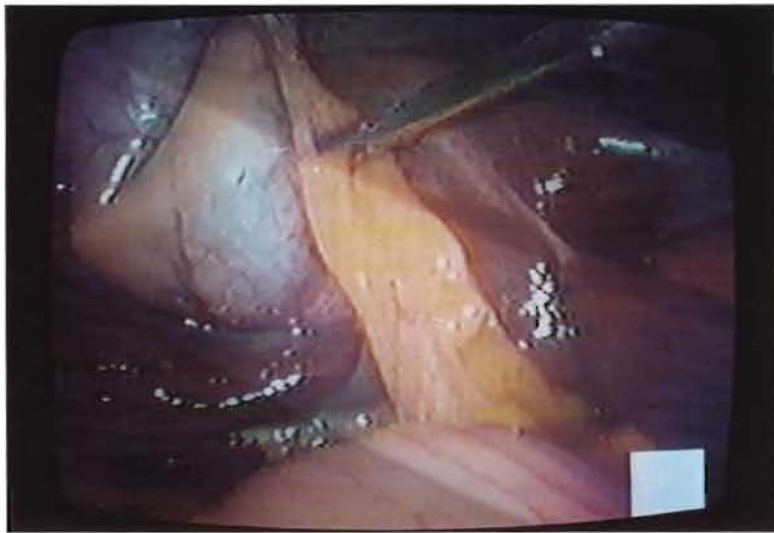
Alfred F. Sudholt, M.D.

'43 (December), passed away January 26, 1991.

Ronald K. Kalkhoff, M.D. '60, an internationally recognized researcher and clinician in obesity and diabetes and a faculty member

at the Medical College of Wisconsin, died December 20, 1990, at the age of 57. He succumbed to heart failure.

Martha E. Matthews, former Elias Michael Director of the Program in Occupational Therapy, died September 30, 1990. She was 79. Matthews led the occupational therapy program for 19 years, from her appointment in 1956 until 1975. She was also deeply involved in planning the facilities at the Irene Walter Johnson Institute of Rehabilitation.



The laparoscope lets surgeons look — and work — inside the abdominal cavity with only minor entry and exit problems. For more on laparoscopic techniques, see the story on page 14.

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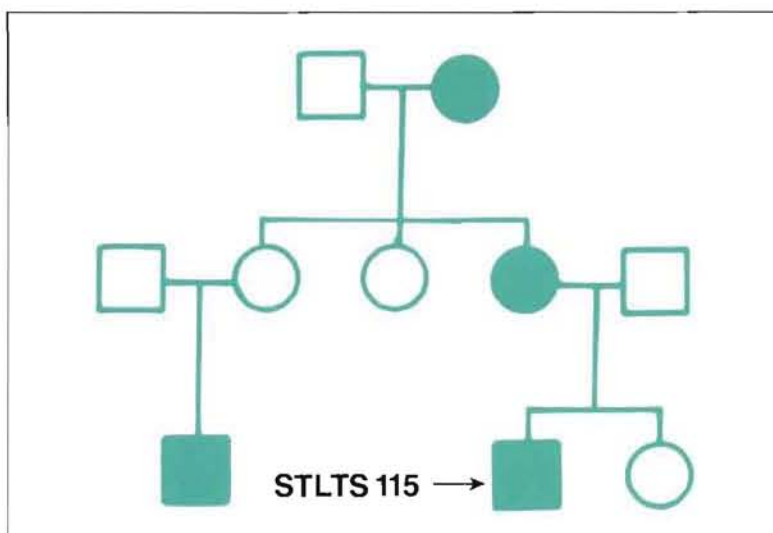
AT WASHINGTON UNIVERSITY MEDICAL CENTER

660 SOUTH EUCLID AVENUE

CAMPUS BOX 8065

ST. LOUIS, MISSOURI 63110

P



In this coded message lies a tiny part of the information used to track genetic disorders such as Tourette Syndrome. "STLTS" stands for St. Louis Tourette Syndrome. The number identifies the family represented by the diagram, in which filled figures represent affected individuals. Squares stand for males, circles for females. In family 115, a man and wife had three daughters, one of whom inherited Tourette syndrome from her mother. But an unaffected daughter had a son who also showed symptoms. The arrow indicates the proband, or patient through whom the family was identified. For more about Tourette Syndrome, see page 8.